



Munich Personal RePEc Archive

Determinants of self-reported health status: evidence from countrywide surveys of older adults in India

Bakshi, Sanjeev

Indira Gandhi National Tribal University, Amarkantak, India

2010

Online at <https://mpra.ub.uni-muenchen.de/104673/>
MPRA Paper No. 104673, posted 14 May 2021 20:18 UTC

Introduction

The physical, the mental and the social well-being constitute the health of an individual (WHO, 1978) and a population in general. For populations passing through the demographic transition, life expectancies at various ages show an increasing trend over time. To ensure healthy ageing, in such populations, the latter part of the life span of an individual should be free from chronic diseases and impairments. In this context, the prevailing health scenario is best measured in terms of the disease-free life expectancies and the disability-free life expectancies.

At the individual level, the number of diseases and the number of impairments one suffers from, give an account of his/her health. These can be considered as objective measures of physical health. Besides these objective measures, self-reported health (SRH) has received great attention in recent literature (Babones, 2009; Bailas et al., 2003). Inclusion of SRH, while accounting for an individual's health, is akin to giving him/her say in his/her assessment of health. Furthermore, it is opined that SRH captures those hidden aspects of health that go unnoticed otherwise. Although SRH it is a subjective measure of health its salience has grown over time and there are reasons for that. Firstly, there is recognition of the need to give weight to a person's perception of his/her health along with the objective indicators of health in health-related studies. Equally important is the strong association that this indicator has been found to have with the future mortality (Huisman and Deeg, 2010; Idler and Benyamini, 1997; Jylhä, 2009 a) and future functional status (Bond et al., 2006; Hoeymans et al., 1997; Mossey and Shapiro, 1982).

Though simple to measure, the SRH has been criticised for being culture-specific and that each person has a different frame of reference while assessing his/her status of health. Nevertheless, its consistency that the lower states indicate a high risk of future mortality is universal and that makes it appealing in health-related studies. In other words, this measure not only incorporates the objective state of health but also what cannot be measured by these objective states. According to Jylhä (2009 b), the SRH is “crossroad between the social world and psychological experiences on one the hand and the biological world on the other.” Further, the social conditions prevailing at childhood also affect the perception of health at

older ages (Nicholson, 2005). SRH, which is an indicator of the future state of health, can serve as an indicator of health-related quality of life of the older adults (OAs).

Unlike the non-older adults, most of the OAs are retired from active economic life, the marital status is at the risk of changing from married to widowhood and they may be dependent on others for care and sustenance. Further, the prevalence of chronic health conditions are common among OAs. The demographic transition, thus, infuses health transition in the society where the health scenario is predominated by chronic diseases. These changes have a profound impact on the quality of life of older adults. Health, being one of the salient integrands of the quality of life, is affected by the socioeconomic environment of older adults. A framework of the Social Determinants of Health (Kelly et al. 2009; WHO 2007) is provided by WHO. In brief, the framework consists of three levels of factors that influence health and health differentials in society. These three levels are namely, the socioeconomic and political context, structural determinants of health inequities and the intermediary determinants of health.

Akin to the social determinants of health the perception and subsequent reporting of own health may have socioeconomic determinants. Although an individual's perceptions regarding their health are pertinent upon his / her present state of physical health the conditioning of these perceptions by his / her socioeconomic environment cannot be ruled out. There had been a few studies concerning the socioeconomic aspects associated with the SRH among the OAs. Considering the increasing share of older adults in the demographic space of India and the concern for their well-being such investigations are warranted. The present study attempts to fill this gap. Moreover, such studies can be of potential interest to the social policymakers as they can establish how socioeconomic factors contribute to SRH that is an integral component of health-related quality of life (HRQoL).

Methods

As mentioned in the previous section SRH is an indicator of the future state of mortality. Perception of the state of current health is influenced by the current state of physical health and the relative state of health of OA. The relative state of health status is a comparative perception of one's current state of health when compared to the state of health during a

reference period in the past. Apart from these factors, the socioeconomic environment of an OA may influence her / his perception of the current state of health (Figure 1).

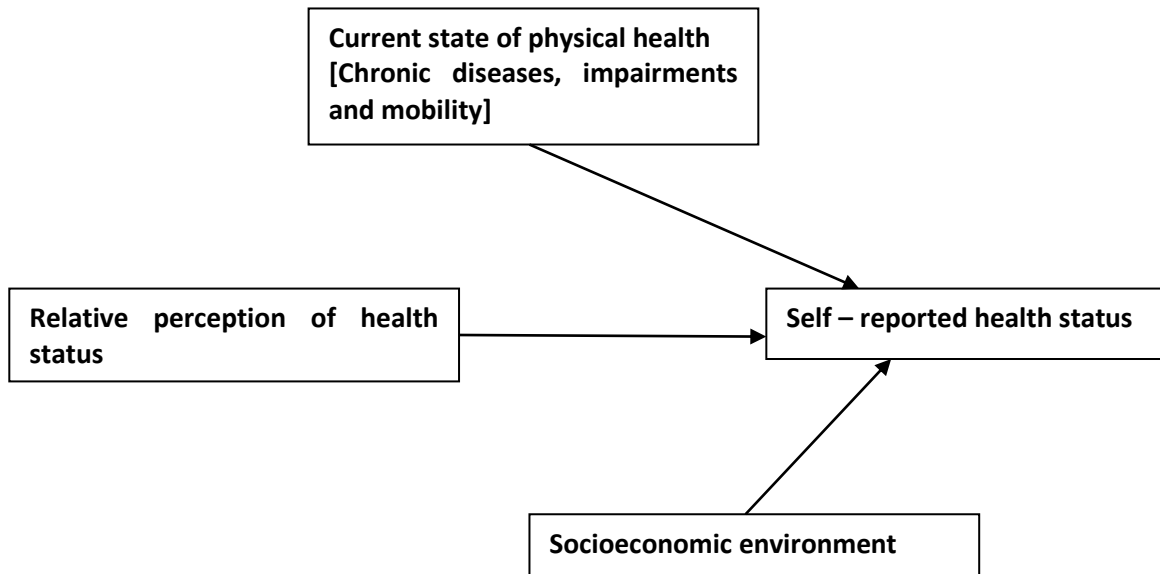


Figure 1: Influence of various factors on self-reported health status

The aim of the present study is an investigation into the influence of the latter set of factors on the SRH of the OAs. For this purpose, pooled data from the 52nd and the 60th rounds of the National Sample Survey are utilized. A person aged sixty years and above is defined as an OA in these surveys. These surveys were conducted during 1995-96 and 2004 respectively. The effective sizes of samples that are utilized in the present study are 27888 and 28248 respectively for the two reference periods. In these surveys, the SRH was measured on a five-point ordinal categorical scale. The categories were Poor, Fair, Good, Very Good and Excellent. For analyses, similar categories were collaged. Fair and Good were collaged into the category Fair / Good. Very Good and Excellent were collaged into the category Very Good / Excellent. The terms used for Poor, Fair / Good and Very Good / Excellent categories in the present study are respectively, Low, Normal and High.

As illustrated in Figure 1 the SRH may have associations with the current state of physical health, the relative perception of health status and the socioeconomic environment of the OA. In the present study, the set of variable that are used to define the physical health are the number of chronic diseases, the number of impairments and the state of being mobile. The

relative perception of health status is an ordinal variable with categories, namely, “worse”, “somewhat worse”, “nearly the same”, “somewhat better” and “much better”. Responses for this variable are recorded considering a reference period of one year before the date of the survey. The set of variables representing the socioeconomic environment of an OA include years of education, gender, age, marital status, financial dependence, living arrangements, economic affluence of the household and rural/urban place of residence. To account for any changes over time, the reference periods as former (1995-96) and latter (2004) are also considered in the analysis. The economic affluence of household is defined based on the per capita monthly expenditure of the households. Based on the pentiles of the distribution of per capita monthly expenditure the households are categorized into five groups called as the 1st, the 2nd, the 3rd, the 4th and the 5th pentile. The 5th pentile represents the most affluent group of households. The order of decreasing affluence is from the 5th through the 1st. The categorization is done separately for the households in the rural and urban areas.

The associations of SRH with a number of chronic diseases, the number of impairments and the state of being mobile (the three variables for measuring physical health), relative perception of health status and economic affluence of the household are measured using gamma measure for ordinal variables. The chi-square measure of association is utilized to investigate the association of the rest of the variables with SRH.

The set variables representing the socioeconomic environment that are included in the study are based on the Social Determinants of Health Framework (WHO 2007). However, a modified form of the framework is utilized keeping in view the information available in the data sets utilized for the purpose. Akin to the social determinant of health the study proposes a social determinants perspective to the SRH. The immediate socioeconomic environment of an OA is defined by their age, their marital status, their years of education, their gender, their living arrangements (alone or co-resident type), their financial dependency, rural/urban place of residence and the economic affluence of their household. The association of SRH with socioeconomic environment is investigated utilizing the ordinal logistic regression model. The model is explained as follows:

Letting p_1 , p_2 and p_3 denote the probabilities that an older adult perceives his/her health as “high”, “normal” and “low” respectively. The model associating the probabilities of perception about the state of health and various potential factors is given as

$$\ln\left(\frac{p_1}{p_2 + p_3}\right) = \alpha_1 - \left(\sum_{i=1}^k \eta_i x_i\right)$$

$$\ln\left(\frac{p_1 + p_2}{p_3}\right) = \alpha_2 - \left(\sum_{i=1}^k \eta_i x_i\right)$$

where, β_i is the effect of the variable x_i . Here x_i are variables representing the physical health, the relative health and the socioeconomic environment. The effect of the set of variables representing the socioeconomic environment is interpreted in terms of odds ratios. Further, these effects are obtained after controlling for physical health and relative health status. The odds ratios represent the odds in favour of the higher status of health (when compared to the lower status). This means the odds in favour of the “high” status of SRH (when compared to the odds in favour of “normal” or “low” statuses of SRH). It also means the odds in favour of “high” or “normal” statuses of SRH (when compared to the odds in favour of the “low” status of SRH). Henceforth, the term “odds in favour of higher status of SRH” (HS) is used in the sense discussed above.

Findings

Sample-based profile of older adults during former reference period 1995-96

The proportions of OAs in the categories, namely, “high”, “normal” and “low” were found to be 0.11, 0.72 and 0.17 respectively. The respective figures for older females were 0.07, 0.72 and 0.21. The distributions for both the genders were found to differ significantly from each other. The proportion of older males is found to be higher than that of older females for the category “high” whereas for the category “low” older females have proportion higher than that of older males (Table 1).

The sample was composed of OAs with 49.9 % being males and 50.1 % being females. The rural OAs constituted 78.1 % of the sample the remaining 21.9 % belonged to urban areas. Most of the OAs were married (61.0 %). However, 38.2 % reported being widowed. A small percentage of 0.9 % reported being unmarried/divorced/separated (classified as “others”). About 13.1 % of the OAs were residing alone and 86.9 % of the OAs were co-residing with

others. The gender, the place of residence and the marital status were found to have a significant association with the SRH. However, the living arrangements were not found to have a significant association with SRH (Table 2).

Table 1: distributions of the older adults, by gender, over different states of self-reported health

gender	self-reported health	reference periods		m.d.i.s statistic (p-value)
		1995-96	2004	1995-96 and 2004
older males	high	0.11	0.07	205.54(0.00)
	normal	0.72	0.72	
	low	0.17	0.21	
older females	high	0.07	0.04	213.40(0.00)
	normal	0.72	0.71	
	low	0.21	0.25	
m.d.i.s statistic (p-value)		158.29(0.00)	166.43(0.00)	

note: m.d.i.s stands for minimum discrimination information statistic

The state of physical health is represented by the number of chronic diseases, the number of impairments and mobility. The number of OAs who reported being free of chronic diseases and impairments were 39.9 % and 60.3 % respectively, Further 89.9 % of OAs had no restriction on mobility (Table 3). A very high and significant association was found between mobility and SRH. The value of gamma was found to be 0.84 (Table 3) in this case. On the other hand, the number of chronic diseases and the number of impairments were found to have a significant negative association with SRH. The values of gamma were found to be respectively, - 0.47 and – 0.56 (Table 3) for these associations. The relative perception of health status and SRH were found to have a high degree of positive association. The value of gamma for this association is found to be 0.72 and significant.

The financially dependent, partially dependent and not dependent OAs constituted 53.2 %, 16.0 % and 30.8 % of the sample respectively. Financial independence is found to have a significant positive association with SRH. The value of gamma for this association is found to be 0.41 (Table 3). About 69.8 % of OAs were illiterate. Education showed a significant positive association with SRH. The value of gamma for this association was found to be 0.19 (Table 3). The value of gamma for the association between SRH and economic affluence is found to be 0.10 (Table 3). This indicated a positive and significant association.

Table 2: percentage distribution of older adults over different attributes for reference periods 1995-96 and 2004 and p values of chi-squared statistic for testing the association between SRH and respective variables

attributes	1995-96		2004	
	percentage	χ^2 p value	percentage	χ^2 p value
gender				
older male	49.9	0.00	50.5	0.00
older female	50.1		49.5	
place of residence				
rural	78.1	0.00	75.6	0.00
urban	21.9		24.4	
marital status				
others	0.9	0.00	0.7	0.00
widowed	38.2		38.3	
currently married	61.0		60.9	
living arrangements				
alone	13.1	0.00	16.2	0.26
co-residence	86.9		83.8	

Profile of older adults during the latter reference period 2004

The proportion of older males in “high”, “normal” and “low” states of SRH was found to be 0.07, 0.72 and 0.21 respectively. The corresponding figures for older females were found to be 0.04, 0.71 and 0.25 respectively (Table 1). The distribution of older males and older females over different states of SRH were found to be significantly different. The proportion of older males in category “high” if found to be higher than that of older females in the same category. On the other hand, the proportion of females in the category “low” is found to be higher than that of older males during the same reference period. The distributions of SRH, for both the genders, are found to be significantly different for the two reference periods. It is observed that over the time the proportion in category “low” has increased while the proportion in category “high” has increased. This is observed for the distribution of SRH for both the genders (Table 1).

The sample was composed of 50.5 % of older males and 49.5 % of older females. OAs residing in rural and urban areas were 75.6 % and 24.4 % respectively. Marital status as the widow and currently married was reported respectively by 38.3 % and 60.9 % of the OAs. About 83.8 % of OAs co-resided and the remaining were residing in the alone type of living

arrangement. The gender, the place of residence, the marital status and the living arrangements were found to be significantly associated with SRH (Table 2).

Table 3: percentage distribution of older adults over different attributes for reference periods 1995-96 and 2004 and p values of gamma for measuring the association between SRH and respective ordinal variables

attributes	1995-96		2004	
	percentage	Γ (<i>p value</i>)	percentage	Γ (<i>p value</i>)
difficulty in mobility				
severe	1.7		1.4	
partial	8.4	0.84 (0.00)	6.5	0.73 (0.00)
no difficulty	89.9		92.0	
financial dependence				
dependent	53.2		53.0	
partially dependent	16.0	0.41 (0.00)	13.7	0.44 (0.00)
not dependent	30.8		33.3	
education				
illiterate	69.8		65.5	
<10 years	24.5	0.19 (0.00)	25.9	0.26 (0.00)
10 or more years	5.7		8.6	
no of chronic diseases				
0	39.9		72.9	
1	32.2	-0.47 (0.00)	22.7	-0.49 (0.00)
2 or more	27.9		4.3	
no of impairments				
0	60.3		84.0	
1	24.0	- 0.56 (0.00)	14.4	-0.54 (0.00)
2 or more	15.7		1.6	
relative health				
worse	3.9		2.3	
somewhat worse	22.1		18.2	
nearly the same	67.5	0.72 (0.00)	66.2	0.84 (0.00)
somewhat better	5.0		10.3	
much better	1.4		2.9	
economic stratum				
1 st pentile	18.4		18.8	
2 nd pentile	20.7		19.6	
3 rd pentile	21.4	0.10 (0.00)	21.2	0.13 (0.00)
4 th pentile	20.5		17.8	
5 th pentile	19.1		22.6	

The OAs who were mobile, free of chronic diseases and free of any impairment constituted respectively 92.0 %, 72.9 % and 84.0 % of the sample. These variables with a gamma value of 0.73, - 0.49 and - 0.54 were found to have a significant association with SRH. The OAs who had a total or partial financial dependence on others were respectively found to be 53.0

% and 13.7 % of the sample. The rest of the OAs were not financially dependent on others. With a gamma value of 0.44, financial independence and SRH were found to have a positive and significant association. In what follows the findings of the ordinal logistic regression of SRH on various socioeconomic factors are presented. The associations are interpreted in terms of odds ratios.

The association of various socioeconomic factors with SRH

The odds in favour of HS are 0.85 times lesser among the older males when compared to the older females (Table 4). There is no significant difference observed between married and widowed OAs in this respect. However, the odds in favour of HS are found to be reduced by 0.79 times among the unmarried/divorced/separated (called others) OAs when compared to the married OAs (Table 4). Financial dependence among the OAs is found to have a significant association with SRH. When compared to the financially dependent OAs the OAs who are partially dependent or not dependent have odds in favour of HS higher by 1.45 times and 2.10 times (Table 4) respectively. SRH is also found to show a significant association with the level of education among the OAs. The odds in favour of HS are found to be 1.17 times and 1.44 times higher (Table 4), respectively, for OAs with less than 10 years of education and 10 or more years of education. This is in comparison to the illiterate OAs. Increasing age of OAs reduces the odds in favour of HS. A year of increase in the age of an older adult reduced the odds in favour of HS by 0.97 times (Table 4) when compared to the previous year. The living conditions and household are also found to have a significant association with SRH as discussed in what follows.

As mentioned earlier the OAs are either in an alone type of living arrangement or they are in a co-residence type of living arrangement. The OAs who co-reside have 1.41 times (Table 4) higher odds in favour of HS when compared to the OAs who are living alone. When compared to the OAs in the most affluent economic strata the OAs belonging to the 1st, the 2nd, the 3rd, and the 4th pentiles have respectively, 0.59, 0.74, 0.85 and 0.88 times lesser odds in favour of HS (Table 4). The urban OAs have odds in favour of HS that are 1.25 times higher (Table 4) than that of the rural OAs. The odds in favour of HS are found to be lesser by 0.26 times (Table 4) during the later reference period (2004) when compared to the former reference period.

Table 4: ordinal logistic regression odds ratios for regression of self-reported health on various socioeconomic variables

variables	odds ratio (p value for effects)	variables	odds ratio (p value for effects)
<i>Immobility</i>		<i>Dependence</i>	
severe	0.12 (0.00)	not dependent	2.10 (0.00)
partial	0.29 (0.00)	partially dependent	1.45 (0.00)
no difficulty®		dependent®	
<i>Relative health</i>		<i>Economic affluence</i>	
worse	0.00 (0.00)	first pentile	0.59 (0.00)
somewhat worse	0.01 (0.00)	second pentile	0.74 (0.00)
nearly the same	0.05 (0.00)	third pentile	0.85 (0.00)
somewhat better	0.20 (0.00)	fourth pentile	0.88(0.00)
much better®		fifth pentile®	
<i>Years of Education</i>		<i>Marital Status</i>	
> 10 years	1.44 (0.00)	Others	0.79 (0.05)
< 10 years	1.17 (0.00)	Widowed	0.97 (0.17)
illiterate®		currently married®	
<i>Gender</i>		<i>Residence</i>	
male	0.85 (0.00)	urban	1.25 (0.00)
female®		rural®	
<i>Living arrangements</i>		Reference Period	
co-residence	1.41 (0.00)	2004	0.26 (0.00)
alone ®		1995-96®	
<i>Impairments</i>	0.72 (0.00)	Threshold	
<i>Chronic diseases</i>	0.61 (0.00)	high	0.06 (0.00)
<i>Age</i>	0.97 (0.00)	normal	0.00 (0.00)

note: p-value corresponds to the test of the hypothesis that the corresponding effect is 0 against the alternative that it is not zero

Discussion

The investigation of the association of the relative state of health, the household affluence and the financial dependence with the SRH is a distinguishing feature of the present study. Not only the objective measures of health dictate the perception but also the relative change in the health status as experienced by an older adult during last one year. Apart from these health factors the individual characteristics, household composition and economic condition also have a significant role in shaping the perception about health. Among the individual characteristics, the roles of education and financial dependency are worth mentioning. It can be said that education helps in reporting a better status of health whereas; economic dependency forces an older adult to report a lesser health status.

Older adults in poorer households perceive poor health status. The finding that older adults living in poor households are more likely to report better health status is not supported by the present population of older adults. It also comes out from the present analysis that co-residence is congenial for a better perception of health status. To put it in other terms, living in multigenerational households enhances the chances of feeling healthier. The older adults in rural areas are less likely to perceive a better state of health when compared to their urban counterparts. The possible reasons could be lesser infrastructure and particularly health infrastructure in the rural areas.

Conclusion

The basic question investigated in the previous sections is what makes the OAs feel healthier? And the question a policymaker has to address is how to make the OAs feel healthier? This can be achieved by mitigating the risk of future mortality and the risk of future poor functional status. A large chunk of the proposed solutions lies in the prevailing health infrastructure of society. But, this is not of the preview of the present investigation. What the present investigation emphasises is that there are also socioeconomic dimensions to addressing the question of perception of better health status among the OA population. Thus, the socioeconomic environment, akin to SRH, is a predictor of the future state of mortality and functional status of OAs. Consequently, there are socioeconomic solutions to this and these solutions can contribute their bit in improving the perception about health among the OAs. Among these broad set of social and economic factors, the factors that can be controlled and regulated to the benefit the older adults can be identified.

References

1. Babones, S. J. (2009). The consistency of self-rated health in comparative perspective. *Public Health*, 123, 199-201.
2. Bailis, D. S., Segall, A., & Chipperfield, J. G. (2003). Two views of self-rated general health status. *Social Science and Medicine*, 56, 203-217.
3. Bond, J., Dickinson, H. O., Matthews, F., Jagger, C. & Brayne, C. (2006). Self-rated health status as a predictor of death, functional and cognitive impairment: a longitudinal cohort study. *European Journal of Ageing*, 3, 193-206.
4. Hoeymans, N., Feskens, E. J. M., Kromhout, D., Van Den Bos, G. A. M. (1997). Ageing and the relationship between functional status and self-rated health in elderly men. *Social Science and Medicine*, 45, 1527-1536.
5. Huisman, M., & Deeg, D. J. H. (2010). A commentary on Marja Jylhä's "what is self-rated health and why does it predict mortality? Towards a unified conceptual model." *Social Science and Medicine*, 70, 652-654.
6. Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: a review of twenty-seven community studies. *Journal of Health and Social Behaviour*, 38, 21-37.
7. Jylhä, M. (2009 a). What is self-rated health and why does it predict mortality? Towards a unified conceptual model. *Social Science and Medicine*, 69, 307-316.
8. Jylhä, M. (2009 b). Self-rated health between psychology and biology. A response to Huisman and Deeg. *Social Science and Medicine*, 70, 655-657.
9. Kelly MP, Steward E, Morgan A, Killoran A, Fischer A, Threrlfall A, Bomejoy J (2009) A conceptual framework for public health: NICE's emerging approach. *Public health* 123: 14-20
10. Mossey, J. M., & Shapiro, E. (1982). Self-rated health: a predictor of mortality among the elderly. *American Journal of Physical Health*, 72, 800-808.
11. Nicholson, A., Bobak, M., Murphy, M., Rose, R., & Marmot, M. (2005). Socio-economic influences on self-rated health in Russian men and women - a life course approach. *Social Science and Medicine*, 61, 2345-2354.
12. WHO. (1978). Declaration of Alma-Ata.
http://www.euro.who.int/AboutWHO/Policy/20010827_1
13. WHO (World Health Organization). (2007). A conceptual framework for action on the social determinants of health. Discussion paper for the Commission on Social Determinants of Health.